

In the Claims:

This listing of claims will replace all prior claim listings in this application.

Listing of Claims

1. (Previously presented) A method for filling a contact hole comprising:
depositing a base layer in at least one contact hole under a protective gas atmosphere,
wherein the base layer comprises titanium nitride;
depositing a covering layer under gaseous nitrogen atmosphere in the contact hole after depositing the base layer
wherein the covering layer comprises titanium nitride, and
wherein depositing the base layer under a protective gas substantially prevents the formation of nitride compounds in the titanium nitride at the bottom of the contact hole by reaction with nitrogen contained in the gaseous nitrogen ;and
depositing a contact hole filling material comprising tungsten in the contact hole after depositing the covering layer,
wherein the covering layer at the bottom of the contact hole, has a thickness of less than about 10 nm.
2. (Currently amended) The method according to Claim 1, wherein the base layer or the covering layer (54) or both are deposited by directional sputtering.
3. (Previously presented) The method according to Claim 1 further comprising depositing an intermediate layer by directional sputtering in the contact hole after depositing the base layer and before depositing the covering layer wherein at least about eighty percent of the atoms of the intermediate layer comprise titanium atoms.
4. (Previously presented) The method according to claim 1, wherein depositing an intermediate layer comprises forming at least one region by sputtering from a nitride-free surface of a sputtering target under a protective gas atmosphere.

5. (Previously presented) The method according to Claim 2 wherein depositing a base layer comprises sputtering the base layer from the surface of a sputtering target that is nitrided before depositing the base layer.

6. (Previously presented) The method according to Claim 3, wherein depositing the base layer and the covering layer and the intermediate layer comprises sputter deposition using the same sputtering target.

7. (Previously presented) The method according to Claim 1 further comprising forming the contact hole in a dielectric layer to expose an electrically conductive connecting section, wherein the connecting section comprises one of aluminum or an aluminum alloy as a main constituent.

8. (Currently amended) The method according to Claim 7 further comprising forming an auxiliary layer or the electrically conductive connecting section and etching a plurality of contact holes in the dielectric layer ~~(18)~~, wherein the electrically conductive auxiliary layer is used as a stop layer during the etching occurring

9. (Previously presented) The method according to Claim 1 wherein depositing a contact hole filling material is deposited comprises depositing using tungsten hexafluoride.

10. (Previously presented) The method according to Claim 3, wherein depositing the base layer and the intermediate layer, comprises forming a composite layer at the bottom surface of the contact hole having a thickness of less than about 5 nm .

11. (Previously presented) The method according to Claim 1 further comprising forming the contact hole to have a diameter of less than about 1 μm , and to a depth of greater than 500 nms.

12. (Currently amended) An integrated comprising:
at least one contact hole, in which a base layer and a covering layer (54)
comprising titanium nitride are arranged,
wherein the base layer adjoins a connecting section comprising one of
substantially nitride-free aluminium or an aluminium alloy arranged between the
connecting section and the base layer, and
wherein the contact hole contains a filling material comprising tungsten,
and
wherein the covering layer at a bottom of the contact hole has a thickness
of less than about 10 nm.

13. (Currently amended) The integrated circuit according to Claim 12 further
comprising an intermediate layer (52)-arranged between the base layer and the
covering layer, wherein at least about eighty percent of the atoms of the intermediate
layer comprise titanium atoms.

14. (Previously presented) The integrated circuit according to Claim
13, wherein the base layer and the intermediate layer comprise a composite layer at a
bottom surface of the contact hole having a thickness of less than about 5 nm.